SECY-97-283

December 4, 1997

FOR: The Commissioners

FROM: L. Joseph Callan /s/
Executive Director for Operations

SUBJECT: RECOVERY OF MILLSTONE NUCLEAR POWER STATION

PURPOSE:

To provide the Commission with a periodic summary of ongoing activities related to the Restart Assessment Plan for the Millstone Nuclear Power Station, in response to a staff requirements memorandum dated May 7, 1997. The summary includes a status of the NRC's oversight of the Independent Corrective Action Verification Program, an assessment of licensing issues for restart, a summary of significant inspection activities and results, and an updated project planning schedule.

BACKGROUND:

On November 4, 1995, the licensee (Northeast Utilities) shut down Millstone Unit 1 for a planned refueling outage. During an NRC investigation of licensed activities at Millstone Unit 1 in the fall of 1995, the NRC staff identified potential violations in the refueling practices and operation of the spent fuel pool cooling systems. The violations involved inconsistencies with the Updated Final Safety Analysis Report (UFSAR). The NRC issued a letter to the licensee on December 13, 1995, requiring it to inform the NRC before restarting of Millstone Unit 1 pursuant to Section 182a of the Atomic Energy Act of 1954, as amended, and Section 50.54(f) of Title 10 of the Code of Federal Regulations (10 CFR 50.54(f)), of the actions taken to ensure that in the future it would operate that facility according to the terms and conditions of the plant's operating license, the Commission's regulations, and the plant's UFSAR.

In January 1996, the NRC designated the three units at Millstone as Category 2 plants on the NRC's watch list. Plants in this category have weaknesses that warrant increased NRC attention until the licensee demonstrates a period of improved performance. On February 20, 1996, the licensee shut down Millstone Unit 2, declaring both trains of the high-pressure safety injection (HPSI) system inoperable because of a design issue (there was a potential that the HPSI throttle valves could become plugged with debris in the sump recirculation mode). On March 30, 1996, the licensee shut down Millstone Unit 3 after finding that containment isolation valves for the auxiliary feedwater turbine-driven pump were inoperable because the valves did not meet NRC requirements. In response to (1) a licensee root-cause analysis of Millstone

Unit 1 UFSAR inaccuracies that identified the potential for similar configuration management conditions at Millstone Units 2 and 3, and (2) design configuration issues identified at these units, the NRC issued 10 CFR 50.54(f) letters to the licensee on March 7 and April 4, 1996. These letters required that, before restarting each unit, the licensee inform the NRC of the corrective actions taken regarding design configuration issues at Millstone Units 2 and 3.

In June 1996, the NRC designated the three units at Millstone as Category 3 plants on the NRC's watch list. Plants in this category have significant weaknesses that warrant maintaining them in a shutdown condition until the licensee can demonstrate to the NRC that it has both established and implemented adequate programs to ensure substantial improvement. Plants in this category require Commission authorization to resume operations.

On August 14, 1996, the NRC issued a confirmatory order directing the licensee to contract with a third party to implement an Independent Corrective Action Verification Program (ICAVP) to verify the adequacy of its efforts to establish adequate design bases and design controls. The ICAVP is intended to provide additional assurance, before unit restart, that the licensee has identified and corrected existing problems in the design and configuration control processes.

On October 24, 1996, the NRC issued an order directing that, before restarting any Millstone unit, the licensee develop and submit to the NRC a comprehensive plan for reviewing and dispositioning safety issues raised by its employees and ensuring that employees who raise safety concerns can do so without fear of retaliation. The order also directs the licensee to retain an independent third party to oversee implementation of its comprehensive plan.

On November 3, 1996, the NRC created a new organization, the Special Projects Office (SPO), within the Office of Nuclear Reactor Regulation (NRR), to provide a specific management focus on future NRC activities associated with the Millstone units. The SPO's responsibility for activities at Millstone includes all licensing and inspection activities required to support an NRC decision on restart of the Millstone units.

In SECY-97-003, "Millstone Restart Review Process," dated January 3, 1997, the staff described to the Commission processes and approaches that the NRC staff will use to oversee the corrective action programs at the three units of the Millstone Nuclear Power Station. The staff is applying the guidelines of NRC Manual Chapter (MC) 0350, "Staff Guidelines for Restart Approval," to the restart approvals for Millstone Units 1, 2, and 3.

On January 30, 1997, the staff and the licensee briefed the Commission on their respective activities at Millstone. Subsequently, on April 23, 1997, and August 6, 1997, the staff and the licensee provided the Commission updates on these activities.

DISCUSSION:

In a staff requirements memorandum dated May 7, 1997, the Commission directed the staff to provide the Commission, prior to each quarterly meeting

with the Commission, a written summary of the ongoing activities in the Restart Assessment Plan, including, but not limited to, the status of NRC oversight of the ICAVP, an assessment of licensing issues required for restart, a summary of significant inspection activities and results, and an updated project planning schedule.

The staff has identified in the Restart Assessment Plan several major elements that require resolution before plant restart. These elements include the corrective action program improvements, work planning and control improvements, procedure upgrade programs, employee concerns program improvements, and quality assurance and management oversight improvements. The plan also includes staff activities to evaluate the completion of the ICAVP and the licensee's response to NRC's 10 CFR 50.54(f) letters regarding Millstone Units 1, 2, and 3. The actions listed in the generic Manual Chapter 0350 restart checklist that are applicable to Millstone, such as those regarding management effectiveness and self-assessment capability, are also included in the plan. The plan provides for the conduct of an Operational Safety Team Inspection (OSTI), which is normally carried out to assess the overall readiness of a plant for restart after a prolonged shutdown. Other issues that will be reviewed by the NRC before restart include pending 10 CFR 2.206 petitions, enforcement actions, and allegations. Attachment 1 is a summary status of the major elements of the Restart Assessment Plan. Attachment 2 is the staff's plan for assessing NNECO's processes for handling employee safety concerns. The plan provides additional details on staff actions regarding licensee handling of safety concerns.

The staff's overall assessment is that the licensee is progressing in its various activities to effect needed improvements at Millstone. Led by a new senior management team since late CY 1996, the licensee has initiated a broad-scope effort to identify problem areas and to implement corrective actions. Although progress has not kept pace with the licensee's initial schedules, improvements in essentially all elements of the NRC's Restart Assessment Plans for Units 3 and 2 are being identified. This progress notwithstanding, the NRC staff's most important assessments of the licensee's readiness for restart have not yet taken place. These assessments are necessarily focused in the latter stages of the licensee's improvement program. A number of significant inspection activities (e.g., OSTI, employee safety concerns, corrective actions, and oversight-effectiveness) will be initiated following the licensee's own readiness determination. These inspections and the staff's remaining evaluations of the issues identified in the Millstone Restart Assessment Plans will ultimately form the bases for a staff restart recommendation to the Commission.

The project planning schedules for Units 3 and 2 are provided in Attachment 3. The licensee continues to focus its recovery and restart efforts on Units 3 and 2 and has delayed activities at

Unit 1. The staff's current project planning schedules extend the previously identified (SECY-97-166) dates for possible restart of Units 3 and 2 by approximately 3 months. These changes are directly related to slips in the licensee's schedule for accomplishing major milestones required for restart. The staff is continuing to plan and carry out its inspection and licensing activities based, in part, on extensive coordination with the licensee's schedules and accomplishments.

The OSTI for Unit 3 is scheduled to begin about February 1998, provided that the licensee has implemented all necessary corrective actions to have the plant and personnel ready for power operations. Based on the current schedule, a Commission briefing for a Unit 3 restart decision could occur in March 1998. Licensee efforts at Unit 2 are approximately 2 months behind those at Unit 3. Based on the current schedule, a Commission briefing for a Unit 2 restart decision could occur in the second quarter of CY 1998.

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Attachments:
1. Major Elements of the Restart Assessment Plan
2. Staff Assessment Plan for ECP and SCWE
3. Project Planning Schedule

ATTACHMENT 1

Major Elements of the Restart Assessment Plan

1. Manual Chapter 0350 and Restart Assessment Plan
2. Independent Corrective Action Verification Program
3. Handling of Safety Concerns Raised by Licensee Employees
4. Licensing Issues
5. 10 CFR 50.54(f) Activities
6. Corrective Action Program
7. Oversight
8. Enforcement Status
9. Work Planning and Controls
10. Procedure Upgrade Program
11. Inspection Activities and Results

12. Operational Safety Team Inspection

ISSUE: NRC Manual Chapter 0350 and Restart Assessment Plan

DISCUSSION: NRC Inspection Manual Chapter (MC) 0350, "Staff Guidelines for Restart Approval," establishes the guidelines for approving the restart of a nuclear power plant after a shutdown resulting from a significant event, complex hardware problem, or one for which serious management deficiencies have been identified. The primary objective of the guidelines in MC 0350 is to ensure that the NRC's restart review efforts are appropriate for the individual circumstances, are reviewed and approved by the appropriate NRC management levels, and provide objective measures of restart readiness. The NRC staff is applying the guidelines of MC 0350 to the restart approvals of Millstone Units 1, 2, and 3 because of NRC concerns regarding the overall effectiveness of the licensee's management. MC 0350 states that the staff should develop a plant-specific restart assessment plan for NRC oversight of each plant startup. The restart assessment plan is to include all expected NRC actions required to be taken before the NRC approves a plant for restart.

NRC ACTION: The staff has developed a Restart Assessment Plan (RAP) for each of the Millstone units to incorporate the appropriate aspects of MC 0350 and to address site-specific and unit-specific issues. The RAP consists of several major elements that require resolution before plant restart and are related to the root causes for the decline in licensee performance and must be completed prior to restart. These elements include the corrective action program notification, work planning and control improvements, procedure upgrade programs, employee concerns program improvements, and quality assurance and management oversight improvements. The plan, which is periodically updated, also includes staff activities to evaluate the licensee's responses to the NRC's demand for information [10 CFR 50.54(f)] letters regarding Millstone Units 1, 2, and 3, and completion of the Independent Corrective Action Verification Program. The RAP also contains a unit-specific Significant Items List (SIL): items that the NRC is using to audit and evaluate licensee programs and significant safety and regulatory issues. Additionally, the actions listed in the MC 0350 generic restart checklist that are applicable to Millstone, such as those regarding management effectiveness and self-assessment capability, are included in the plan.

STATUS: The inspection and closure of RAP items is continuing for Units 3 and 2. Because of the licensee's decision to focus its recovery and restart efforts on Units 3 and 2, NRC RAP activities are also being directed to these units. The licensee is providing SIL closure packages for NRC review and has scheduled the SIL closure package submittals for Units 3 and 2. There has been some slippage in the schedule for these closure package submittals. As of November 14, 1997, the NRC staff has closed 30 of the 86 items for Unit 3, with an additional 34 items receiving partial review. For Unit 2, 11 of the 51 items were closed, and 1 of the 108 items for Unit 1 was closed.

ISSUE: Independent Corrective Action Verification Program

DISCUSSION: On August 14, 1996, the NRC issued a confirmatory order establishing an Independent Corrective Action Verification Program (ICAVP). The independent effort, carried out by a contractor approved by the NRC, will verify the adequacy of Northeast Utilities' efforts to establish adequate design bases and design controls, including translation of the design bases into operating procedures and maintenance and testing practices, verification of system performance, and implementation of modifications since issuance of the initial facility operating licenses. The ICAVP is intended to provide additional assurance, before unit restart, that the licensee has identified and corrected existing problems in the design and configuration control processes. It includes a three-tiered approach, as described in SECY-97-003, "Millstone Restart Review Process," dated January 3, 1997, for a sample evaluation of the licensee's activities. The NRC oversight of the ICAVP is one of many activities that make up the Restart Assessment Plan (RAP). The results from this program will be considered as a significant part of the decision regarding recommended restart.
The licensee is implementing its Configuration Management Plan (CMP), which is intended to confirm that the future operation of Millstone Units 1, 2, and 3 will be conducted in accordance with the terms and conditions of their applicable operating licenses, UFSARs, and NRC regulations. The CMP includes efforts to understand the licensing and design bases issues, which led to issuance of the 10 CFR 50.54(f) letters and actions to prevent recurrence of those issues. The CMP includes a review of the licensing basis requirements for the 88 Unit 3 and 63 Unit 2 systems that the licensee has categorized through the implementation of the maintenance rule as either Group 1 (safety-related and risk-significant) or Group 2 (safety-related or risk-significant). After the licensee had completed problem identification of one-half of the Group 1 systems, the ICAVP contractor began its review. The licensee completed the problem identification phase of the CMP for Unit 3 on July 16, 1997, and on September 15, 1997, for Unit 2.

NRC ACTION: The staff's oversight objectives are to ensure that the review by the ICAVP contractor is independent of the licensee and its design contractors, is performed by qualified individuals, and is comprehensive, incorporating appropriate engineering discipline and operational reviews. In accordance with the confirmatory order, the NRC reviewed and approved the proposed ICAVP contractor for each unit and the contractor's audit plan for each review. The staff selected the specific systems to be evaluated in the ICAVP, with input from the Connecticut Nuclear Energy Advisory Council (NEAC). The NEAC selected two of the systems to be reviewed by the ICAVP contractor for Units 2 and two systems for Unit 3 from a list of systems identified by the NRC. While key design aspects of many of the systems being evaluated by the licensee will be assessed in the ICAVP, four systems will be examined in detail by the contractor. The scope of the ICAVP will be increased if significant issues are identified in the assessment of the licensee's corrective actions.

In addition to overseeing the activities of the ICAVP contractor, the staff is performing its own independent inspections. The staff plans to conduct independent vertical-slice inspections of at least two systems per Unit; one within the scope of the ICAVP and one outside the scope. Also, the staff will evaluate the final results of the ICAVP contractor's audit and assessment of the licensee's corrective actions. Details of the staff's oversight plans are contained in SECY-97-003.

STATUS: The staff approved Sargent & Lundy (S&L) for the conduct of the Millstone Units 1 and 3 ICAVP on April 7, 1997. The licensee completed problem identification on one-half of the Group 1 systems for Unit 3 on May 27, 1997. The staff approved the S&L audit plan on June 3, 1997, and selected the first two systems for ICAVP review (service water system and the quench spray/recirculation spray system(1)). On July 16, 1997, the licensee completed the problem identification phase for Unit 3. The two remaining systems were selected by the NEAC from a list of systems provided by the NRC that were grouped to provide

insights into safety system functionality. The first system group selected by NEAC was the emergency diesel generator which is comprised of nine systems. The second system group selected was the auxiliary building HVAC system and supplemental leakage collection and release system.

The staff approved Parsons Power Group, Inc. (Parsons) on May 28, 1997, to conduct the Millstone Unit 2 ICAVP. The audit plan was approved by the staff on July 15, 1997. The licensee completed problem identification on one-half of the Group 1 systems June 30, 1997. At that time the staff selected the first two systems for review (high pressure safety injection system and the refueling water storage tank as one system and auxiliary feedwater and the condensate storage tank as the other system). On September 15, 1997, the licensee completed the problem identification phase of CMP for Unit 2. In an identical process to Unit 3, NEAC selected the second two systems on September 18,1997. The first system group selected by NEAC was the emergency diesel generator and support systems which for Unit 2 includes 5 systems. The second systems group selected was radiological release control systems which includes 3 systems.

Both Parsons and S&L have extended their projected schedules for completing the ICAVP. The extensions have been a result of several factors, a fuller realization of the scope and depth of review required, the ability to find experienced engineers to augment their staff's, and the ability of the licensee to simultaneously supply documentation in a timely manner to both ICAVP contractors and the NRC staff.

In accordance with the staff's plan to assess the effectiveness of the licensee's Configuration Management Plan described in SECY-97-003, the staff conducted a Safety System Functional Inspection (SSFI) on a system that was outside the scope of the ICAVP but had been reviewed by the licensee's Configuration Management Plan (CMP). The staff selected the safety injection mode of the charging system for Unit 3 as the subject of this inspection. The inspection included four weeks on site in addition to two weeks of in office review. The inspection identified findings that were similar in nature to SSFIs previously conducted by the staff at other sites, including several issues that are being evaluated by the licensee that may potentially affect system operability. The team had identified a number of findings that were not previously identified by the licensee's CMP. Some of the findings related to FSAR information that was not consistent with the facility design. Following the inspection, the licensee reassessed their CMP for Unit 3 and concluded that it was a comprehensive program to verify conformance with the design and licensing bases. However, the licensee acknowledged that the CMP did not review system functionality in a manner similar to the SSFI conducted by the staff. Therefore, the CMP did not identify the kinds of operational issues identified by the staff. Following the conclusion of the staff's inspection, the licensee initiated a functional review of systems required to mitigate a loss of coolant accident. This review will examine the ability of these systems to perform their intended accident mitigation function when called upon, considering the actual initial systems conditions anticipated during normal plant operation. The staff is evaluating the SSFI findings and the licensees corrective actions with regard to the effectiveness of the licensee's CMP.

In September, the staff completed the inspection of S&L's implementation of the Unit 3 ICAVP audit plan. The inspection team identified some weaknesses, which were promptly addressed by S&L. However, the team was not able to evaluate certain aspects of S&L's ICAVP implementation because they had not yet been started. The inspection team concluded, that for the aspects of the audit plan available for review, the ICAVP audit plan was being adequately implemented. The remaining

ISSUE: Handling of Safety Concerns Raised by Licensee Employees

DISCUSSION: In its September 1996 report, "Millstone Independent Review Group Regarding Millstone Station and NRC Handling of Employee Concerns and Allegations," the NRC staff determined that, in general, an unhealthy work environment, which did not tolerate dissenting views and did not welcome or promote a questioning attitude, has existed at Millstone plants for the past several years. This poor environment has resulted in repeated instances of discrimination and ineffective handling of employee concerns.

On October 24, 1996, the Director, Office of Nuclear Reactor Regulation, issued an order to Northeast Utilities (NU) requiring specific actions to resolve problems in the process for handling employee safety concerns at the Millstone station. The order required Northeast Nuclear Energy Company (NNECO) to develop, submit for NRC review, and implement a comprehensive plan for (a) reviewing and dispositioning safety issues raised by its employees and (b) ensuring that employees who raise safety concerns can do so without fear of retaliation. On January 31, 1997, NNECO submitted the plan to the NRC and began implementation of elements of the plan.

The order further required NNECO to submit, for NRC approval, the name of the proposed independent, third-party oversight program (ITPOP) organization, to oversee implementation of NNECO's comprehensive plan. On April 7, 1997, the NRC approved Little Harbor Consultants, Inc. (LHC), as the third-party organization. The order specified that once approved, the third-party organization was to develop and submit for NRC approval its oversight plan. On May 2, 1997, LHC submitted its third-party oversight plan to the NRC for approval. On

July 15, 1997, the NRC reviewed and approved the ITPOP oversight plan. As specified in the order, independent, third-party oversight will continue until NNECO demonstrates, by its performance, that the conditions which led to the requirements of the oversight have been corrected.

NRC ACTION: The NRC staff will perform the following functions regarding employee concerns: (1) review and comment on the licensee's comprehensive plan; (2) review and approve the third-party organization that will oversee the comprehensive plan; (3) review and approve the third-party organization oversight plan; and (4) assess the effectiveness of NNECO's implementation of its programs for handling employee safety concerns.

In assessing of program effectiveness, the staff will rely substantially on the findings of ITPOP's oversight activities. The staff will direct its limited resources to evaluating a sample of NNECO's programs and activities and reviewing ITPOP oversight activities. These objectives will be

accomplished by reviews of NNECO programs, procedures, and data; assessment of program measures and indicators; observation and monitoring of program activities; and a team evaluation of NNECO's Employee Concerns Program and safety-conscious work environment activities and ITPOP oversight of those activities.

STATUS: As discussed above, the staff has reviewed and provided comments to the licensee on the comprehensive plan, approved the ITPOP organization, and reviewed and approved the third-party organization oversight plan.

The NRC staff is implementing its assessment plan for monitoring the licensee's implementation of the comprehensive plan and LHC oversight of that implementation. An NRC team evaluation is scheduled to begin the week of December 8, 1997. The staff's assessment plan for NNECO's processes for handling employee safety concerns is provided as Attachment 2 to the Commission paper.

As of November 13, 1997, the staff has observed considerable progress in NNECO's Employee Concerns Program (ECP) efforts. LHC has found that NNECO's response implementation have been effective in resolving identified issues. Further, the ECP staff were proactive in their response to several personnel action issues that occurred late in the summer. Less progress has been apparent in NNECO's activities to establish a safety-conscious work environment (SCWE). At a November 13, 1997, meeting, LHC reported that their reviews had found that ECP, SCWE, and management activities were not being adequately coordinated. LHC also reported that employee training on SCWE was not timely and that the training for managers and supervisors were lacking in instruction for the areas of protected activities, retaliation, and chilling effects. Also, while NNECO has made efforts to identify management and supervision problem areas, LHC reports that actions to address these known problem areas were not being implemented in a timely manner. NNECO has taken action to address these findings and will address LHC recommendations at a future meeting between NRC, LHC, and NNECO. The staff's team evaluation scheduled to begin the week of December 8, 1997, will assess the status of both the ECP and SCWE activities at Millstone station.

ISSUE: Licensing Issues

DISCUSSION: The licensee plans to submit or has submitted licensing issues (amendments, unresolved safety questions, relief requests, etc.) for each unit that will need to be reviewed and approved prior to restart.

NRC ACTION: The staff will process and review licensing actions as they are identified and submitted by the licensee. The staff will follow the normal processes for these actions.

STATUS: Unit 3: As of November 14, 1997, the licensee has submitted 29 license amendments that it has determined to be needed prior to restart. In addition, the licensee has identified one additional license amendment, needed prior to restart (scheduled to be submitted by the end of November 1997). Of the 29 amendment requests submitted to the NRC, 17 have been issued, 4 have been withdrawn, and the other 8 are under NRC review. There are six other licensing issues under staff review. For five of the six issues, the staff is waiting for additional information or the completion of the licensee's review. The staff is reviewing the remaining one.

Unit 2: As of November 14, 1997, the licensee has identified 20 licensing actions that need to be completed prior to restart. These include 13 license amendments, 5 other licensing actions, 1 exemption, and 1 unreviewed safety question. Of the 20 to be submitted to the NRC, 6 have been completed, 9 are currently under staff review, and five have not yet been submitted.

Unit 1: As of November 14, 1997, the licensee has identified 14 licensing actions that need to be completed prior to restart. Only five have been submitted to the NRC. Of the five submitted, three license amendments have been issued and the others are currently under NRC review.

The amendments submitted to date and the staff's projected review schedule do not appear to impact the licensee's ability to restart on its current schedule. However, the staff has requested additional or clarifying information on several license amendment requests, and these requests have lengthened the review process. Late submittals or new emerging issues, which require extensive staff review, may impact the licensee's projected schedule.

ISSUE: 10 CFR 50.54(f) Activities

DISCUSSION: On December 13, 1995, the NRC issued a letter to Northeast Utilities (NU) requesting NU, pursuant to 10 CFR 50.54(f), to provide information describing actions taken to ensure that future operations of Millstone Unit 1 will be conducted in accordance with the terms and conditions of the Millstone Unit 1 operating license, the Commission's regulations, including 10 CFR 50.59, and the Millstone Unit 1 UFSAR. Similar letters were issued to NU for Millstone Unit 2 on March 7, 1996, and Unit 3 on April 4, 1996. In those letters, the NRC requested that the information be submitted no later than 7 days before restart of the respective Millstone units.

By letter dated May 21, 1996, the NRC further requested, pursuant to 10 CFR 50.54(f), a comprehensive list of design and configuration deficiencies identified after the letter of December 13, 1995, was sent for Millstone Unit 1, and after the Adverse Condition Report 7007 Event Response Team Report was issued for Millstone Units 2 and 3.

Because of the increased level of NRC oversight, the classification of the units at Millstone as Category 3 plants, the two previously mentioned orders, and the creation of the Special Projects Office, the information needed by the NRC before plant restart changed. By letter dated April 16, 1997, the NRC superseded the requests contained in the previously mentioned 10 CFR 50.54(f) letters and requested the following items: (1) the significant items that need to be accomplished before restart; (2) the list of items to be deferred until after restart; (3) the process and rationale NU is using to defer items until after restart; and (4) a description of the actions taken to ensure that future operation of the unit(s) will be conducted in accordance with the license, regulations, and UFSAR. NRC requested the licensee to submit items 1, 2, and 3 within 45 days of the letter and items 1 and 2 were to be updated approximately 45 days thereafter. Item 4 was requested to be submitted 14 days prior to the Commission meeting for each individual unit.

By letter dated May 29, 1997, the licensee submitted the requested information (items 1, 2, and 3) for Millstone Units 2 and 3. The licensee did not submit the information for Millstone Unit 1 in the first submittal because of a decision to scale back work and minimize resource expenditures during 1997. By letter dated July 14, 1997, the licensee submitted the required information for Millstone Unit and an update for Millstone Units 2 and 3. An inspection of the Millstone Unit 3 restart and deferral list was

conducted in July 1997 (see discussion below). In a letter dated August 26, 1997, the licensee stated that the next update letter scheduled for August 29, 1997, would be delayed due to a review of the scope of work and the process used to develop the lists (corrective action following inspection). By letter dated October 21, 1997, the licensee submitted an update on the deferred issues (item 2) for all three units. The Milstone Unit 3 list now contains approximately 3000 items to be deferred, the Millstone Unit 2 list contains approximately 1100 items. The licensee did not submit an update on the significant items for restart (item 1) due to continuing reviews. An inspection of the Millstone Unit 2 and 3 list was conducted in October 1997.

NRC ACTION: In July 1997, the NRC staff reviewed the licensee's May 29 and July 14, 1997, submittals. As a result of the inspection, the NRC found the licensee in violation of 10 CFR 50.9, "Completeness and accuracy of information," and issued the licensee a Notice of Violation (NOV). The staff stated in the NOV that the information provided was inaccurate or incomplete in that (1) open item reports were not included in the May 29, 1997, submittal; (2) control room deficiencies and bypass jumpers were not reviewed for inclusion in the May 29, 1997, submittal; (3) all existing items were not included in the submittals; and (4) a number of items that the licensee did not intend to defer were improperly included in the list of items to be deferred until after restart. Following the inspection, the licensee implemented several corrective actions, including defining management roles and responsibilities, developing a specific verification and validation process, and increasing management oversight.

STATUS: In October 1997, the NRC staff reviewed the licensee's October 21,1997, submittal. The staff noted improvements in the quality of the list and did not find any significant items on the deferred list that needed to be completed prior to restart.

The NRC staff plans to inspect the Millstone Unit 2 and 3 lists again closer to restart. This inspection will be limited to the additional items added to the deferred list since the October 21, 1997, submittal.

ISSUE: Corrective Action Program

DISCUSSION: NU's Corrective Action Program has been weak in ensuring comprehensive and effective corrective actions. In many instances, narrowly focused corrective actions have failed to resolve all aspects of the underlying problem. Additionally, the licensee has failed to follow up on corrective actions to ensure effectiveness.

NRC ACTION: The NRC inspection staff will concentrate on issues identified for each unit by the licensee's condition report (CR) process and will audit the licensee's corrective actions for completeness. The staff is periodically selecting (CRs) for review, based on the licensee's assigned level of importance, or on their risk significance, as perceived by the NRC staff. Additionally, the staff will examine other CRs to gain a broader spectrum of corrective action issues.

The primary intent is to assess the Corrective Action Program while evaluating safety-significant technical issues. Additional insights will be gained using NRC Inspection Manual Chapter 40500, "Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems," monitoring closure of the Significant Items List issues, monitoring closure of licensee event reports, and through the normal inspection program, which routinely collects valuable insights regarding the effectiveness of corrective actions. Additionally, the NRC staff, through oversight of the ICAVP, will assess the licensee's corrective actions for degraded and nonconforming conditions.

Prerequisites for the NRC MC 40500 inspection are that the unit is physically ready for plant restart, the Nuclear Oversight Restart Verification Plan is complete, and that there is a decreasing trend in the number of restart issues (e.g., maintenance work orders, deficiencies, significant items). The inspection will assess licensee management effectiveness in resolving problems and organizational effectiveness in dealing with employee-identified issues. In particular, the inspection will focus on the results of the nuclear oversight restart verification process for utility leadership, self-assessments, corrective actions, operating experience feedback, and the onsite and offsite safety review committees. Finally, the OSTI will audit portions of the corrective action process.

STATUS: The inspections performed to date indicate an increased management focus on the Corrective Action Program problem at Units 2 and 3. The staff has noted improvements in the quality of the Significant Items List closure packages provided by the licensee. The corrective action planning and implementation for these RAP items are generally being evaluated as adequate for issue closure.

The staff has requested that the licensee determine, with nuclear oversight concurrence, plant readiness for an NRC MC 40500 inspection and communicate this to the NRC docket. A nuclear oversight audit conducted at Units 2 and 3 from August 11 through 29, 1997, concluded that the corrective action program has not yet achieved the state of implementation required to demonstrate effectiveness in resolving identified significant concerns adverse to quality in a timely manner. In October 1997, licensee line management conducted self-assessment activities to evaluate readiness for the NRC corrective action inspection. Based on the results of the self-assessments, the licensee first said that it would be ready for the NRC MC 40500 inspection by December 1, 1997. Subsequently, licensee management decided that the physical readiness of Unit 3 for plant restart was a condition to be met before the NRC MC 40500 inspections. Physical plant readiness is projected for late December 1997. Therefore, the NRC MC 40500 inspection has been scheduled for January 1998.

ISSUE: Oversight

DISCUSSION: The licensee has identified its oversight function as deficient through self-assessments and external and internal audits, and has identified its oversight function as a factor in its declining performance. The Yankee Atomic Electric Company (YAEC), as described in the report "Assessment of Past Ineffectiveness of Independent Oversight," examined the failure of Quality Assessment Services, the Independent Safety Evaluation Group, and the Nuclear Review Board to identify specific program deficiencies at Millstone. YAEC found that management did not support these oversight functions adequately.

The licensee, more recently, had an independent review of the nuclear oversight function performed by an outside consulting firm. A July 1997 independent assessment of Nuclear Oversight stated: "The team found that the Nuclear Oversight organization has made considerable progress over the past 6 to 9 months. However, the team also found that significant additional improvement is required both from nuclear oversight and from Millstone station senior management before the oversight

organization will be fully effective."

NRC ACTION: The NRC assessment of the nuclear oversight function is addressed through insights gained from the normal inspection program. In addition, the NRC will perform a special inspection of the oversight function using NRC Inspection Manual Chapter 40500. Additionally, the OSTI will inspect how effectively the oversight function has been integrated into the operation of the plants.

STATUS: At Units 2 and 3, the staff has observed increased Nuclear Safety and Oversight (NS&O) involvement in performance monitoring, interfacing analysis, and support of the management and line staffs. Particularly noteworthy were NS&O's assessments of training and the 50.54(f) effort. Rotational assignments between the line organizations and Nuclear Oversight continue and appear to have had positive impact upon quality assurance credibility with other licensee organizations. Nuclear Oversight, as part of its Restart Verification Plan issued in August 1997, continues to monitor the status of approximately 21 "key issues" (e.g., corrective action, leadership, compliance operations, et. al.) at Units 2 and 3, thus providing line management with independent assessment input as to the areas that need improvement. Although the staff has noted improvements, final assessment of Nuclear Oversight performance is reserved until completion of the NRC MC 40500 and OSTI inspections.

ISSUE: Enforcement Status

DISCUSSION: A predecisional enforcement conference was held with the licensee on December 5, 1996, to discuss 64 apparent violations. Subsequent inspections have identified additional examples of similar violations these have been incorporated into the enforcement package, increasing the number of violations to approximately 80 individual items. The licensee did not contest any of the violations at the conference, and the staff is finalizing the enforcement package.

NRC ACTION: Once enforcement actions have been taken, the NRC will evaluate the licensee's corrective action for those enforcement actions determined to impact the restart of each unit.

STATUS: The enforcement history at Unit 3, prior to the plant shutdown in 1996, was generally good. With the significant number of configuration and design basis deficiencies identified during subsequent NRC followup inspections, as well as the licensee's own identified configuration management problems, routine and escalated enforcement rose accordingly. In the last 6 months, the licensee has issued approximately 28 licensee event reports (LERs), most of which represent licensee-identified violations of regulatory requirements. Over the last three inspection periods, 12 LERs involving violations of the plant Technical Specifications have been inspected and closed. Currently, there are 36 escalated enforcement items pending on Unit 3.

At Unit 2, NRC inspections conducted in 1996 resulted in a large number of escalated enforcement items associated with configuration and design basis deficiencies. Currently, there are 22 escalated enforcement items pending on Unit 2.

Since current violations, unresolved items, and escalated enforcement items might actually reflect past problems just recently discovered, it is difficult to assess performance on the enforcement numbers alone. Recent enforcement items at Units 3 and 2 are associated with procedure inadequacies, emergency preparedness, training, and failure to wear proper dosimetry.

ISSUE: Work Planning and Controls

DISCUSSION: Work planning and controls are other areas in which the licensee has shown a weakness. The ability to plan, control, and complete work is fundamental to achieving adequate corrective actions. Effective work planning and controls are prerequisites for reducing and managing backlogs. Weak work planning and controls were demonstrated during the Unit 2 outage, wherein tagging boundary violations resulted in an extensive effort by the licensee to correct the identified weaknesses.

NRC ACTION: The NRC staff reviewed the licensee's recently implemented site-wide Automated Work Order (AWO) process. The AWO process is an integral part of the work planning and control system and is instrumental in establishing the scope of the work, providing the appropriate procedures, and establishing the tagging boundaries.

The OSTI will assess engineering and maintenance backlogs during the operational readiness inspection. The OSTI will determine if there are safety-significant issues that must be resolved before restart.

STATUS: At Unit 3, some configuration management and component lineup (e.g., valve position) discrepancies have contributed to operational events. While these events (e.g., a spent fuel pool heatup) were of low safety significance, licensee corrective measures were directed to work planning and controls to strengthen the support to operations. Substantial progress has been made to reduce the backlog of preventive maintenance work orders, but the corrective maintenance backlog of AWOs still represents a challenge for the licensee to keep to its work schedule for physical plant readiness. As of November 19, 1997, the AWO backlog is 2163. At startup, the goal for AWOs is less than 500 items, which includes less than 350 maintenance-rule systems items. Recent progress in motor-operated valve rework and testing has allowed operational evolutions to proceed, but less than 50 percent of the valve work is complete.

At Unit 2, performance associated with tagging adequacy, work scope definition, and procedural adherence has been good. Evaluation of the schedule from a shutdown risk perspective continues to be good. One of the licensee's greatest challenges continues to be a lack of adherence to schedule that limits progress in reducing backlogs and achieving timely corrective actions. The current AWO backlog for this outage is 1432. A great deal of work associated with engineering modifications remains. Out of a total 151 outage modifications, 105 require physical work, and only 24 have been completed. None of the three Significant Items List (SIL) issues associated with maintenance has yet been closed.

ISSUE: Procedure Upgrade Program

DISCUSSION: The quality of and adherence to procedures have been chronic problems at the Millstone site. This issue was an element in the "Improving Station Performance" program and the earlier "Performance Enhancement Program." In response to NRC concerns, the licensee developed the Procedure Upgrade Program (PUP) in the early 1990s to improve station procedures.

Before the reorganization in October 1996, there was a station-wide Procedure Upgrade Group that provided overall control of

the PUP. This group developed and maintained the station document control (DC) procedures for control of the program, the overall status of upgraded procedures, coordinators for each Millstone unit, and the hiring of contractors, as necessary, to write the procedures. Since the licensee's reorganization in October 1996, the PUP group has been decentralized. The station-wide group now only controls the station administrative procedures, including the PUP DC procedures. The implementation and quality of procedure upgrades are now the responsibility of the individual technical departments within each unit.

NRC ACTION: The staff, in its inspection of selected plant procedures and other inspection activities, will identify whether the procedures have been upgraded and will evaluate the effectiveness of the PUP. NRC inspections will include an assessment of the PUP for each Millstone unit.

STATUS: At Unit 3, the effectiveness of the previous licensee PUP initiative has not been clear. The CMP activities at Unit 3 have shown a need for individual procedure revisions, as well as for programmatic efforts (e.g., integration of vendor information into unit procedures) which are still ongoing. An integrated NRC review of procedural adequacy has determined that in conjunction with the PUP, the other licensee CMP and programmatic initiatives, if followed through to proper completion, provide reasonable assurance that adequate procedures for the safe operation of the plant will exist at the time of unit restart. Since this area continues to receive appropriate licensee management attention and will be further inspected during normal inspections and special planned team inspections continuing assessment of procedural adequacy is an ongoing effort.

At Unit 2, the PUP has not yet been completed. The intent of the upgrade effort was to reformat the procedures.

ISSUE: Inspection Activities and Results

STATUS: The most recent inspection report for the Millstone station (NRC Inspection Report Numbers 50-245/97-203; 50-336/97-203; 50-423/97-203, dated November 21, 1997) identified four violations of NRC requirements. One violation at Unit 1 involved the failure to properly ensure that safety-related work was correctly coded and reviewed by the Quality Control (QC) group. In May 1997, a work control procedure was revised to resolve a previously identified problem with QC involvement in the work planning process. In this case, the new requirements in that procedure were not followed. As processes and procedures continue to be changed, plant personnel need to be properly trained and new expectations must be continually reinforced. The report also describes a Unit 2 violation in which an operating procedure failed to address thermal binding concerns for the Unit 2 steam admission valves for the turbine- driven auxiliary feedwater pump. Another site-wide violation involved shipping activities in which a package of radioactive material was transported from the facility to the Connecticut Yankee Atomic Power Station. Upon receipt, the package was determined to have external radiation levels above the regulatory limits. Finally, a recurring site-wide violation was identified in radiological worker practices. Four examples of workers improperly entering or exiting the radiologically controlled area at each unit were identified during the period September 8-16, 1997. Although corrective actions taken to address previously identified violations in this area have generally reduced the rate at which such errors are occurring, they have not been fully effective.

At Unit 2, the licensee has been successful in addressing the longstanding problems associated with tagout adequacy, as demonstrated by good performance over an extended period. Strong self-assessments and corrective actions associated with tagging have been the driving force behind continued improvements in this area.

On September 24, 1997, the licensee reported that the Unit 2 engineered safety feature actuation system (ESFAS) cabinets were inoperable because new power supplies installed in a 1994 modification could have blown the power supply fuses if an ESFAS actuation had occurred, thereby preventing the actuation of safety equipment. The licensee event review team determined that the root cause of this event was the configuration management process was inadequately implemented and documented for the ESFAS power supply modification.

Substantial work remains to be done to achieve closure of the Generic Letter (GL) 89-10 motor-operated valve (MOV) program at Units 2 and 3. The Units 2 and 3 GL 89-10 program had recently been significantly revised. MOV design basis reviews, modifications, overhauls, and additional testing remained to be completed. Appropriate resources were devoted to forming a new MOV organization to support all of the Millstone units in correcting MOV program deficiencies.

For Unit 3 in this report and in the previous inspection report, improvements were noted in the programmatic control of several major technical and topical areas (e.g., environmental qualification, MOVs, electrical separation) and the SIL items associated with these issues appeared to be properly directed toward resolution. However, in other SIL areas (corrective action; vendor programs; materials, equipment, and parts lists), which appear to represent engineering programs of a more general topical nature and which are applicable to all three units, prompt and sustained progress toward the disposition of NRC concerns was less evident.

As the result of the emergency preparedness program inspection for restart (NRC Inspection Report Numbers 50-245/97-203; 50-336/97-203; 50-423/97-203, dated November 24, 1997), several problems were identified that do not support restart. The problems included: (1) instances of failure to maintain emergency response facilities in accordance with the emergency plan; (2) inadequate dose assessment procedures; (3) effectiveness of the emergency plan was reduced without prior NRC approval; and (4) self-assessment activities did not identify these problems.

The licensee is planning to begin reloading the core at Unit 2 on

January 19, 1998. The NRC staff is planning to inspect the licensee's regulatory compliance during mode change, management oversight and involvement, operator performance, and nuclear oversight

ISSUE: Operational Safety Team Inspection

DISCUSSION: As a final check before the staff can recommend restart of each individual unit, the staff will conduct an inspection to verify that plant operations are being conducted safely and in conformance with regulatory requirements. The staff will verify that the organizations that control and support plant operations are functioning effectively to ensure operational safety. Elements of the

inspection include operations, maintenance, surveillance, management oversight, technical support, safety review, quality assurance, and corrective action. Additionally, the staff will verify that the licensee has properly prepared its staff and the plant for resumption of power operations after an extended shutdown.

NRC ACTION: NRC management will designate a team leader and arrange for the appropriate technical inspectors. The team leader will develop the scope of the inspection and determine the necessary technical disciplines to inspect the plan adequately. The inspection team typically is given 1 to 2 weeks to prepare for the inspection, 2 weeks (or more, if needed) on site to perform the inspection, and 2 weeks to write the report inputs. A formal exit interview with the licensee is held 1 to 2 weeks after the last day of the inspection to present the findings and receive any completed corrective actions from the licensee.

STATUS: The team leaders for Units 3 and 2 have been identified and planning has begun. A draft inspection plan has been developed and is under management review. The inspection for Unit 3 is planned to start about February 1998. The inspection for Unit 2 is scheduled to start in the second quarter of 1998.

1. The quench spray system and the recirculation spray system are identified as two separate systems by the licensee but they are being considered as one system for review by the ICAVP.